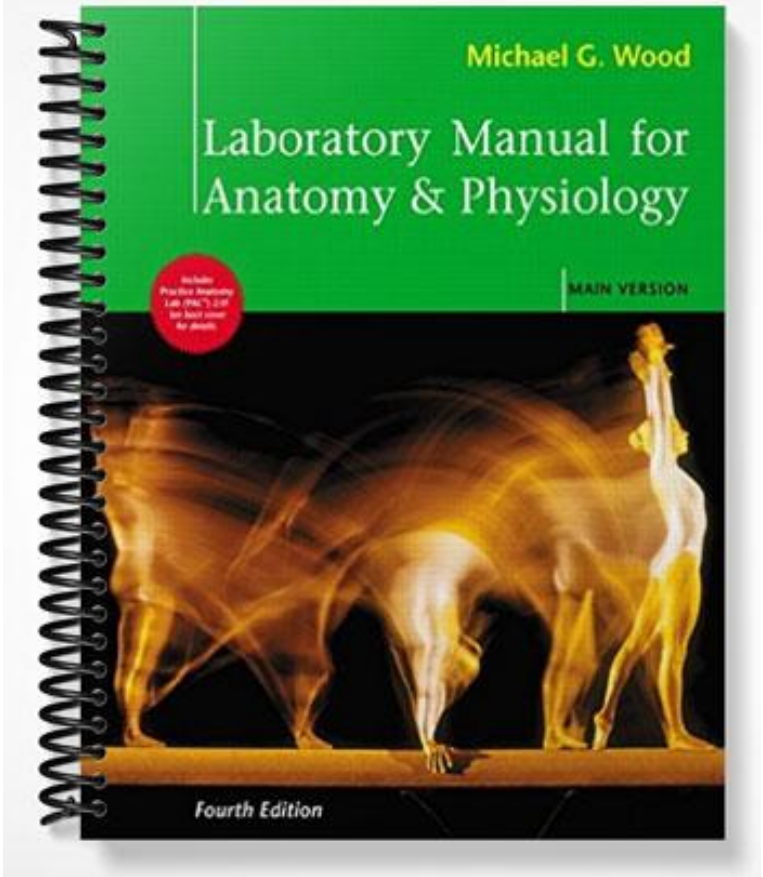
SOLUTIONS MANUAL



EXERCISE

Laboratory Safety 1

MASTER LIST OF MATERIALS

- First aid kit
- Wipes
- Gloves
- Safety glasses
- Sharps box
- Biological waste container

TIME REQUIREMENT

- 15–30 minutes

LABORATORY PREPARATION

- Check first aid kits for stock of Band-Aids, wipes, and gloves. The lab should also have a box for glass disposal and a container for biological waste. Know the location of fire extinguishers, fire alarms, eyewash fountains, and building evacuation routes.

TEACHING TIPS AND STUDENTS' MISCONCEPTIONS

- This exercise may be integrated into a laboratory safety orientation developed by your institution. At minimum, it is recommended that students complete the "Location of Safety Equipment" section of the exercise.
- Whatever the format of your safety discussion, it should include instructions on the safe handling and disposal of broken glass, biological specimens, and chemicals such as fixatives and reagents.

EXERCISE

Answers to Questions 1

LOCATION OF SAFETY EQUIPMENT:

Nearest telephone _____

First aid kit _____

Fire exit _____

Fire extinguisher _____

Eye wash station _____

Chemical spill kit _____

Fan switches _____

Biohazard container _____

LABORATORY REPORT

A. Short-Answer Questions

1. Always wear gloves while handling body fluids and never allow body fluids to touch your unprotected skin. Work only with your own body fluids and always assume that a body fluid can infect you with a disease. Clean up body fluid spills with a 10% bleach solution or a commercially prepared disinfectant. Wear gloves during the cleanup and dispose of contaminated wipes in a biohazard container.
2. Infectious diseases are always present in the population at large. Since casual observation of a fluid sample cannot determine if the fluid is safe, you should always be safe and assume it could infect you. Practicing safe habits for handling body fluids will prepare you for working in clinical settings where body fluids are obtained from the general population.
3. Wipes, gloves, and other objects that have been contaminated with body fluids must be disposed of in the special biohazard containers that are available in the laboratory. Sharp objects, such as blood lancets and glass, must be disposed of in biohazard sharps containers.
4. Unwind an electrical cord completely before plugging it into an electrical outlet. Do not force the plug into an outlet. Unplug an electrical cord by pulling on the plug, not by tugging on the cord.
5. Limit your exposure to preservatives by wearing safety glasses and gloves and draining excess preservatives from specimens prior to dissections. Promptly wipe up spills and clean your work area when you have completed a dissection. Wash your hands after cleaning up.
6. Biological wastes could contaminate the environment and are a safety risk for individuals employed in waste collection. Biohazard containers are designed to safely hold wastes and are clearly labeled to alert individuals about the hazardous contents.

7. Broken glass should not be picked up with bare hands. A whisk broom and dustpan should be used to sweep the area of all glass shards. Dispose of the broken glass in a sharps container or sealed in a box that is clearly labeled "broken glass inside."
8. List the location of the following safety items in the laboratory:
   first aid kit:
   nearest telephone:
   eye wash station:
   fire exits:
   fire extinguisher:
   chemical spill kit:
   fan switches:
   biohazard container:
9. Harmless chemicals may be disposed of by diluting in water and then pouring down the drain.
10. Centrifuges spin at high speeds, and all loose clothing, jewelry, and hair must be secured to prevent entanglement in the instrument.
11. Preservatives are poured into a chemical storage container for holding until a waste management company disposes of it. Preservatives should not be discarded by pouring them down the drain.
12. Always wear gloves and safety glasses while handling chemicals. Do not shake dry chemicals out of large storage containers; instead, use an appropriate spoon or spatula for retrieving dry chemicals. Always pour solutions into a small beaker first. Use this smaller container to fill your glassware with the correct volume of the solution. To prevent contamination, never return a chemical or solution to its main storage container. When mixing solutions, always add a chemical to water, never add water to the chemical. By diluting the chemical in water you reduce the chance of a strong chemical reaction occurring.